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Oral Insulin Capsules Herald A Diabetes Breakthrough

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At present, the only way for people with type 1 or type 2 diabetes to take insulin is by injection. Insulin injections can be a harrowing experience and anybody who has to use them would love to be able to just swallow a capsule instead. Developing an oral form of insulin has been a “holy grail” for the drugs companies for decades, but the obstacles seemed insurmountable. Now, though, it seems that the prize is almost within reach.

The problem with insulin is that, because it is a protein, it is easily broken down by enzymes in the digestive tract. Insulin is also a very large molecule, which means that it cannot be absorbed easily through the gut wall and circulated to the tissues where it is needed. These problems have stumped the drugs formulators for years, but the financial incentive is huge. Sales of an oral form of insulin have been predicted to be worth up to ten billion dollars a year worldwide.

Novo Nordisk are the world’s biggest suppliers of injectable insulin and risk financial disaster if a competitor gets an oral form to the market before they do. Not surprisingly, they are putting massive resources into developing their own form of oral insulin and have already tested a prototype pill on animals and human volunteers.

The Israeli firm Oramed Pharmaceuticals also believes that it has developed a successful form of oral insulin that has shown good results in early trials. The formulation involves an enteric coated softgel capsule, which passes through the stomach unharmed and only disintegrates once it reaches the small intestine. An absorption enhancer then assists the insulin to cross the gut wall where it is transported to the liver like any other protein. Much of the insulin is broken down by the liver at this stage, but Oramed views this as a positive process that removes the risk of hypoglycaemia associated with injectable insulin.

Two biotechnology companies, Biocon and Tamarisk Technologies have also developed oral delivery methods for insulin and are in licensing negotiations with pharmaceutical companies. Tamarisk Technologies has approached the problem in a unique way by designing what it calls “serum-specific nano-encapsulate particles” that can trick the body cells into treating them as naturally occurring molecules. Tamarisk say that their nano-sized particles are easily absorbed through the gut wall into the lacteal vessels, like fatty acids, and transported directly into the bloodstream, bypassing the liver.

Could oral insulin prevent type 1 diabetes?

As well as allowing people with diabetes to avoid having to inject insulin, the development of oral forms of insulin may help to protect people from getting type 1 diabetes in the first place. Type 1 diabetes is the autoimmune form of the disease, in which the patient’s insulin-producing beta cells are destroyed by their own immune system. Scientists have discovered that people who have two specific kinds of antibodies, one of which is against insulin itself, are very likely to develop type 1 diabetes within five years. However, taking small daily doses of oral insulin could prevent this outcome.

A long-term study in Sweden recruited people with the two antibodies that predict type 1 diabetes and who also had a family member in whom the illness had been diagnosed. They were given daily doses of either oral insulin or placebo, which they continued to take for up to 10 years. At first, the results showed no difference between the two groups in terms of the numbers of participants who developed type 1 diabetes.

However, as the trial progressed, it became clear that oral insulin significantly delayed the onset of the disease. The researchers believe that the immune system becomes accustomed to the low daily doses of insulin in the gastrointestinal tract and that in time it is no longer perceived as a foreign substance. This line of reasoning is the

same as for desensitisation for allergies, in which the dose of the substance that provokes the allergy is gradually increased.

Although these developments hold out much hope, particularly for those who suffer from, or are at risk of, type 1 diabetes, two things are certain. The first is that many years of testing and approval stages lie ahead before any new drug finally becomes available on prescription. The second is that, with a multi-billion dollar market at stake, the drugs companies will be fighting dirty.

They don't have a good track record. This summer, GlaxoSmithKline (GSK) reached an out of court settlement with the US Food and Drugs Administration for a massive three billion dollars over criminal charges relating to illegal marketing and hiding safety information. For seven years, GSK failed to disclose test results showing that its blockbuster anti-diabetes drug Avandia was increasing patients' risk of heart attack. Avandia racked up 10.4 billion dollars in sales before it was banned, but nobody knows how many people died needlessly as a result of GSK's greed.

In my next blog post, I'll reveal the shocking findings of two new books that blow the lid off the pharmaceutical industry's illegal, immoral and potentially lethal practices.

Wishing you the best of health,

Martin Hum
PhD DHD Nutritionist
for Real Diabetes Truth



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References

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1. [Dr Daniel DeBrouse](#) says:
[October 23, 2012 at 5:00 am](#)

I've enjoyed your article. I would like to add; there has never been no reason for Novo to dump all these vast sums of money into continued failure. I have tried so hard to deal with all of big pharma. They understand SSNe Oral Insulin and how the tech works, they cannot say one word against our mechanism but they refuse to deal with Tamarisk? Makes you wonder if they really want it?? Well regardless quietly I have went to phase 111 clinicals overseas and have locked in supply agreements after seeing similiar data as we did in animals and I'm headed to market. I didn't spend 10 years developing this to not have the resolve to commercialize:) I am first a molecular microbiologist and will continue releasing one disruptive tech after another. Sir I intend to change the way in which big pharma does business. 1053% mark-ups??? No lets try getting oral insulin on a \$4 list shall we.

Warm Regards to all I labor for God and Man,

DrDeBrouse

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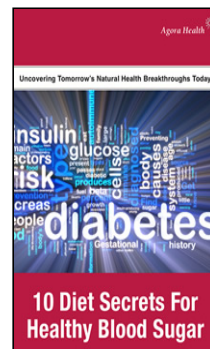
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